

JPRS 68824

24 March 1977

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No. 165

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BIBLIOGRAPHIC DATA SHEET	1. Report No. JPRS 68824	2	3. Recipient's Accession No.
4. Title and Subtitle PEOPLE'S REPUBLIC OF CHINA SCIENTIFIC ABSTRACTS, No. 165		5. Report Date 24 March 1977	
7. Author(s)		6.	
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201		8. Performing Organization Rept. No.	
12. Sponsoring Organization Name and Address As above		10. Project/Task/Work Unit No.	
		11. Contract/Grant No.	
		13. Type of Report & Period Covered	
		14.	
15. Supplementary Notes			
16. Abstracts The serial report contains abstracts in scientific disciplines regarding China.			
17. Key Words and Document Analysis. 17a. Descriptors			
China			
<input checked="" type="checkbox"/> Agricultural Science and Technology		<input type="checkbox"/> Engineering and Equipment	
<input checked="" type="checkbox"/> Bio-Medical Sciences		<input type="checkbox"/> Electronics and Electrical Engineering	
<input checked="" type="checkbox"/> Chemistry		<input checked="" type="checkbox"/> General Sciences	
<input type="checkbox"/> Cybernetics, Computers, and Automation Technology		<input type="checkbox"/> Materials Science and Metallurgy	
<input type="checkbox"/> Earth Sciences		<input checked="" type="checkbox"/> Physics and Mathematics	
17b. Identifiers/Open-Ended Terms			
17c. COSATI Field/Group 01, 02, 04, 06, 07, 08, 09, 11, 12, 13, 20			
18. Availability Statement Unlimited availability. Sold by NTIS Springfield, Va. 22151		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 34
		20. Security Class (This Page) UNCLASSIFIED	22. Price A63

JPRS 68824

24 March 1977

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No. 165

This serial publication contains abstracts of articles published in selected scientific and technical journals. JPRS is unable to honor requests for original source materials or information as to the availability of full translations of these articles.

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ACTA GENETICA SINICA

AUTHOR: FANG Tsung-hsi [2455 1350 3556]
WANG Nai-o [3076 0035 5501]

ORG: Both of Department of Biology, Shantung College of Oceanography

TITLE: "On the Properties of Life: A Criticism on Monod's CHANGE AND NECESSITY"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 100-109

SUMMARY OF ENGLISH ABSTRACT: Monod declares the properties of life to be: Teleonomy, autonomous morphogenesis, and reproductive invariance, and furthermore, that proteins are responsible for almost all teleonomic structures and performances, while genetic invariance is linked exclusively to nucleic acids. These metaphysical ideas are entirely opposed to scientific facts. There is obviously no purpose in the general living beings except man. It is quite unreasonable to say that the "dream" of a cell is to become 2 cells. For example, the unicellular female gametophytes of *Laminaria japonica* can be induced by vitamin C and other agents to carry on mitosis and become multicellular individuals which can be further induced to form parthenosporophytes. As we all aware that phenotypes are the results of interaction of genotypes and environments. No development of living being can be free from the influences of external factors. Lack of iodine in the water, for example, the tadpoles cannot accomplish the metamorphosis. The statement that the organism reproduces its kind can only be statistically true.

AUTHOR: None

ORG: Swine Breeding Research Group, Institute of Animal Husbandry and Veterinary, Chekiang Provincial Academy of Agricultural Sciences

TITLE: "Utilization of Three-Breed Crosses Using Chin-hua Pig as a Fundamental Maternal Line"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 110-118

SUMMARY OF ENGLISH ABSTRACT: According to some primary results from experiments, production observation, and rural promotion for two series of 3-breed cross pig in the last 3 years, hybrid vigor for such main economical trait as fertility and rate of growth could be induced and production could be thus increased from these crosses using high quality local breed as fundamental maternal lines. As for the carcass quality, the Landrace-Yorkshire-Chin-hua cross appeared to be the best; the carcass percentage for 59.8-83.0 kg pig was 67.8-74.1, back amounted to 2.43-3.03 cm for thickness, while the lean meat percentage was 58.1-58.3. Rural promotion in Te-ch'ing-hsien indicated the average daily gain of 3-breed cross was 12.3% higher than that of 2-breed cross, and 28.5% higher than the local breeds.

AUTHOR: None

ORG: Isotope Laboratory, Genetics Group, Department of Biology, Chung-shan University; Kuangtung Provincial Cooperative Group on Crop Heterosis Utilization Research

TITLE: "Study on Biological Characteristics of 'Three Lines' in Crops: III. Comparative Research on Formation and Embryological Characteristics of Pollen Cells, Metabolic Block Development of Vascular Bundle in Anther Septum of Several MS Types in Rice"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 119-127

SUMMARY OF ENGLISH ABSTRACT: Pollen infertility of several Ms types in rice was studied. During the experiments, a common mechanism shared by the Ms types was observed to be abnormal development of xylem and phloem in anther septum during the mononuclear - 3-nuclei stage. The cells in the sheath of vascular bundle were smaller and arranged irregularly; metabolic block developed, especially in the anther. Accordingly, pollen infertility is produced by lack of nutrient as the result of the above 2 factors. Infertility develops mainly in the late mononuclear stage, when metabolic block is formed.

AUTHOR: None

ORG: Yang-k'ou Forest Station, Fukien Province; Tree Breeding Group, Nanking College of Forest Industries

TITLE: "Preliminary Report of 'Early Selection' of Chinese Fir"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Hun 76 pp 128-136

SUMMARY OF ENGLISH ABSTRACT: This study is mainly to test and analyze the correlation coefficient of seedling growth and late growth to determine the effectiveness of early-selection of Chinese fir as a scientific technique. The results indicate: (1) The selection of exceptionally tall seedlings at seedling stage is effective; (2) the mean correlation coefficient of value rating between height and thickness of seedlings: $r=0.686$; $r^2=0.47$. The effectiveness of selection rises as the value of rating falls. As the basis of selection is $\bar{x}_h + 3.0S$, it is best to keep the value of rating in the range of 60-80.1; (3) Effectiveness of early selection becomes obvious within 2-3 years after planting. The approach of selecting superior trees in the second generation appears to be promising.

AUTHOR: LU Tao-p'ei [7120 6670 1014]
HSUEH Chen-p'ing [6585 2182 5493]
WANG An-ch'i [3076 1344 3823]
KUO Ai-p'o [6751 1947 2613]

ORG: LU, HSUEH of Hematology Section, People's Hospital, Peking College of Medicine; WANG, KUO of Cytogenetics Section, Institute of Genetics, Chinese Academy of Sciences

TITLE: "A Study of Chromosomal Abnormalities in Aplastic Anemia"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp137-144

SUMMARY OF ENGLISH ABSTRACT: Chromosome abnormalities were studied in 7 cases of secondary aplastic anemia, caused by organic phosphate insecticide or syntomycin-chloramphenicol and 4 cases of idiopathic aplastic anemia, and another 7 unclassified cases. Peripheral blood leucocytes culture method was used with some modifications for chromosome studies. No significant differences were found between the number of abnormal cells in different clinical grades of severity in aplastic anemia. A sequential sampling test scheme was suggested for the identification between idiopathic and secondary aplastic anemia using accumulated number ($\sum x$) of abnormal cells in 100 cells examined as criteria.

AUTHOR: None

ORG: Institute of Forestry, Heilungkiang Provincial Academy of Forestry

TITLE: "Haploid Poplar Induced From in Vitro Anther Culture"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 145-149

TEXT OF ENGLISH ABSTRACT: Plants of *Populus ussuriensis* Kom. and (*Populus simonii* Carr. x *Populus nigra* L.) hybrid were obtained from poplar anther culture in vitro on BN medium containing kinetin and auxin. Callus was better induced from anther on BN medium supplemented with 2 ppm 2,4-D and 1 ppm kinetin, and differentiation and germination of callus were promoted when BN medium supplemented with 3 ppm kinetin and 0.5 ppm IAA or alternatively with 2 ppm kinetin and 0.3 ppm IAA. In anther culture, performance of different species and hybrid combinations varied markedly.

AUTHOR: None

ORG: Cell Biology Section, Institute of Oncology, Chinese Academy of Medical Sciences

TITLE: "Somatic Chromosome Banding Pattern Among Normal Chinese"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 150-155

TEXT OF ENGLISH ABSTRACT: One hundred metaphase plates from somatic cells of normal Chinese were identified by the trypsin banding technique. Our results showed that the trypsin Giemsa band pattern is similar to the Q and G band pattern presented at the Fourth International Congress of Human Genetics. During the performance of the trypsin banding technique, attention should be drawn to two important conditions: one is the length of chromosomes which based on the length of No 1 chromosome which measured about $10 \pm 2\mu$, the other is the duration of the trypsin digestion. The mechanism of the trypsin chromosome banding has been discussed.

AUTHOR: None

ORG: Second Section, Fourth Laboratory, Institute of Genetics, Chinese Academy of Sciences

TITLE: "Cytochemical Comparisons in Cytoplasmic Male-Sterile, Maintainer, and Restorer Lines of Grain Sorghum"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 156-158

SUMMARY OF ENGLISH ABSTRACT: The present paper deals with the analysis of total protein content, histone, proteins containing rich tryptophane, and tyrosine of microspores of the male-sterile, maintainer, and restorer lines of grain sorghum by applying the cytochemical method. The content of the 4 kinds of protein in the restorer line was high, the maintainer, the intermediate (despite the total protein content) and the male-sterile line was low. Seven enzymes, i.e: peroxidase, cytochrome oxidase, succine dehydrogenase, alkaline phosphatase, glucose-1-phosphatase, 5-nucleotidase, and AT-Pase were examined. The activity of the 6 enzymes (with an exception of peroxidase) in maintainer and restorer were higher than that of the male-sterile; the peroxidase, however, vice versa. The activity of peroxidase of the maintainer was always higher than the restorer; the AT-Pase of the maintainer was always lower than the restorer in the whole growth duration.

AUTHOR: None

ORG: Soochow Monosodium Glutamate Fermentation Plant

TITLE: "Selection of Inosine-Producing Bacillus Subtilis Strain S14 With Genetic Transformation"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 159-163

TEXT OF ENGLISH ABSTRACT: Adenine-requiring strains of Bacillus subtilis have been screened from streptomycin-resistant transformants, since ade adjacent to str locus, and the cotransformation of these two loci may be expected. In transformation experiments, with B. subtilis Marburg strain 168 as recipient and a streptomycin-resistant adenine-requiring and inosine-producing strain 18R₃ as donor, adenine-requiring and inosine-producing strains were gained. One₃ of them, strain S14, is a highly inosine-producing strain, its inosine productivity, 19.5%, is higher than the parent.

AUTHOR: TENG Ch'eng-tsung [6772 2110 1350]

ORG: Radiocytology Group, Yunnan Institute of Zoology

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 164-168

TEXT OF ENGLISH ABSTRACT: The present paper is dealing with a rapid method of micronuclei test for testing chromosomal damage. This method was used for testing the time-effect and dose-effect of the Co⁶⁰ γ - irradiation on the frequency of micronuclei of the lymphocytes in rat blood. And the late effect of 265 rads Co⁶⁰ γ -irradiation in dogs was observed. The results showed that the effect of the radiation on the frequency of micronuclei of lymphocytes in blood and nucleated cell of bone marrow was consistent with the effect on chromosome aberrations.

AUTHOR: None

ORG: Anther Culture Section, Laboratory of Genetics, Kuangtung Provincial Institute of Botany

TITLE: "Study on the Simplification of Medium for Anther Culture of Hsien Rice"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 169-170

ABSTRACT: The new breeding technique of anther culture is being extensively studied in China. The commonly used Miller and Nitsch medium requires certain drugs that are highly costly and difficult to obtain and a complex procedure is needed to prepare it. This factor greatly limits the extension of the technique. A project was thus launched early in 1974 to test and compare five different simplified media, and one of these, containing potato, was found to produce a higher induction rate than the original Miller and Nitsch medium. Anther culture of rice of hsien varieties is generally more difficult than that of keng varieties, but with the new simplified medium, induction of callus and subsequent emergence of sprouts have become possible. With additional research, a mass movement of haploid breeding of hsien rice will be a reality in the future. Experimental data are included in this report.

AUTHOR: HSI Yuan-ling [1153 0337 7881]

ORG: Laboratory of Economic Crops, Kiangsu Provincial Institute of Agriculture

TITLE: "Trends and Prospects of Cotton Breeding"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese No 2, Jun 76 pp 171-178

ABSTRACT: In the past decade, there have been many new breakthroughs in crop breeding with respect to gramineous crops such as paddy rice, wheat, and corn, and many new broadly adaptable, fertilizer-tolerant, disease-resistant, and high yield varieties have been obtained; some improvement has also been made in the quality of the grains. With regard to dicotyledonous crops, such as cotton and soybean, however, advancements have not been very great. Without describing specific projects or experiments, this paper reviews preliminary achievements, the problems, and the objectives in current cotton breeding work, and suggests goals and areas of concentration for future efforts.

6168

CSO: 4009

CHINESE MEDICAL JOURNAL

AUTHOR: CH'I Fang [7871 2397]

ORG: None

TITLE: "Recent Advance on the Research of Drugs for the Treatment of Chronic Bronchitis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 555-558

ABSTRACT: General review on the research of Chinese herb medicines: Since *cuculus poliocephalus latham* was found to be effective in the treatment of chronic bronchitis, extensive pharmacological research has been carried out on this plant. There are more than 700 varieties of this species scattered all over China. From these plants, 39 ingredients have been isolated. Many were found to be effective in loosening sputum. Since stramonium was found to be effective in the treatment of chronic bronchitis, research has been carried out on anticholine drugs such as the *hyascyamus*. Stramonium was found to cause severe side effects, so drugs were added to counteract these side effects, and tablets, injections, vaporizers and suppositories of these compounds were made. In the treatment of over 10,000 cases with tablet compounds, the markedly effective rate was 70-80%, side reactions were

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 555-558]

greatly reduced. *Je-san* [3583 0639] was used to treat over 6,000 cases of chronic bronchitis with good results. The vaporizer of *je-san* compared with isoproterenol showed that the time for relief of asthma was about the same, but *je-san* had a more lasting effect and had no cardiovascular side effects. Many other Chinese herb medicines were found to be effective against chronic bronchitis and are under investigation. These include *cymbidium ensifolium*, *herba brunellae*, *nasturtium montanum*, *vitex negundo*, *ruta*, *artemesia vulgaris*, etc.

Research on the chemistry of drugs: More than 100 ingredients extracted from these herb medicines have been determined of their chemical structure. It was found that the ingredients mainly effective in the treatment of chronic bronchitis were ketones, evaporating oils, coumarins, glucosides, alkaloids, etc. These all have actions of stopping cough, removing sputum and stopping asthmatic attacks. Since varieties of the same species and species of the same family frequently contain ingredients that are similar, so new herb medicines will be searched for under these principles for the treatment of chronic bronchitis.

Research on the synthesis of drugs: At present there are about 40 synthetic drugs for the treatment of chronic bronchitis, 15 of them are purely Chinese herb medicines. Many others are in the experimental stage.

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 555-558]

Research on the pharmacology of drugs: Animal experiments have been carried out to determine the effects of cough suppression, removal of sputum, relief of asthma and antiinfection of these medicines. Animal models of chronic bronchitis were produced and the effects of these medicines were tested on these models. It was found that Chinese herb medicines have good remove the sputum effect. Studies showed that these drugs improved ciliary movement function. Clinical studies of stramonium showed that this medicine not only suppressed excessive secretion of the bronchial glands and relieved bronchial smooth muscle spasms, but also improved bronchial ciliary movement function, decreased bronchial vessel permeation, improved microcirculation, increased non-specific immunity, increased resistance to disease and blocked external irritations that might have changed respiratory function.

Studies on 'Support the positive and maintain the basic' of Traditional Chinese Medicine: Medicines were given to 'Support the positive and maintain the basic' in the prevention and treatment of chronic bronchitis. These included medicines that increase resistance to noxious irritations, increase adrenal cortical functions, readjustment of nervous function and promotion of healing.

AUTHOR: None

ORG: Prevention and Treatment of Chronic Bronchitis Office, No 370 Hospital, Chinese People's Liberation Army

TITLE: "Analysis of Long Term Effects of Vaccine and Sterculia Platanifolia Pod in the Treatment of Chronic Bronchitis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 559-561

ABSTRACT: From 1971, 1434 cases of chronic bronchitis were treated with vaccine and sterculia platanifolia pod injections. The clinically controlled rate was 46.5% and the markedly effective rate was 73.9%. The vaccine used was a triple vaccine of streptococcus A, staphylococcus alba and neisseria. The sterculia platanifolia pod was abstracted from the species firmiana simplex. Method of preparation, dosage and course of treatment were given. The effect of treatment was based on clinical results and was classified into clinically cured, clinical effect stabilized and clinical effect not stabilized. Long term follow-up of 305 cases showed clinically cured and clinical effect stabilized after 1 year was 83.9%, after 2 years 84.9%, and after 3 years 81.3%. X-ray studies of the chest in 100 cases compared with

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 559-561]

before treatment showed improvement of coarse pulmonary markings in 71.1% and improvement of pulmonary edema in 40.0%. The analysis also showed a decrease in the number of common cold attacks, increase of labor capacity and increase of resistance to cold. Laboratory results in 54 cases before and after treatment showed the following changes after treatment: Disappearance of eosinophiles in the sputum; decreased value of DNAF (desoxy-nucleic acid fibrin) in the sputum; decreased value of alkaline phosphatase in the sputum; increase of bacteriolysin in the sputum; increase of phagocytosis index. It was shown that using triple vaccine or steclia platanifolia pod separately in the treatment of chronic bronchitis, both showed markedly effective rates of 59.2%, but when the two were combined for use the markedly effective rate rose to 71.4%.

AUTHOR: None

ORG: Pathology Department, General Hospital, Chinese People's Liberation Army

TITLE: "Clinical Pathological Analysis of Chronic Bronchitis and Pulmonary Cardiac Disease"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 562-565

ABSTRACT: Analysis was made of the autopsy findings of 10 cases of chronic bronchitis and 18 cases of pulmonary cardiac disease. Ten cases that died of other diseases without respiratory tract involvement were used as controls. The purpose was to observe the progress of chronic bronchitis and its relationship to the development of pulmonary cardiac disease; to observe the course of progress of pulmonary cardiac disease and its correlation with clinical symptoms and signs. Most patients were between 50-69 years of age.

It was found that all three groups had pleural adhesions, but they were much more extensive in the pulmonary cardiac disease group. It was concluded that pleural adhesions restricted respiratory function, and was a

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 562-565]

contributing factor in the development of pulmonary cardiac disease. Pulmonary edema was also considered a contributing factor, as all 18 cases of pulmonary cardiac disease showed pulmonary edema, and the degree of edema was much more extensive than the other two groups. Histological studies of the trachea and bronchi showed the following changes: Epithelial proliferation was about the same in the three groups, but necrosis and proliferation was most extensive in the pulmonary cardiac disease group and next in the chronic bronchitis group; glandular proliferation was found in both the pulmonary cardiac disease group and the chronic bronchitis group, much more than in the control group, the chronic bronchitis group showed markedly increased glandular secretion whereas the pulmonary cardiac disease group showed degenerative glandular secretive function; the small and end bronchi of both chronic bronchitis group and pulmonary cardiac group showed much more pathological changes than the control group, epithelial necrosis, proliferation and squamatization were the main changes in pulmonary cardiac disease and dilatation with mucus plugs were the main changes in chronic bronchitis. These changes in the trachea and bronchi indicated the development of pulmonary cardiac disease from chronic bronchitis, the changes showed the different stages of the same disease.

Changes in the heart and their significances were analyzed in the pulmonary cardiac disease group. It was found that all had marked right ventricular

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 562-565]

myocardial hypertrophy, much more than the other groups. The proportion of the circumference of the tricuspid with that of the bicuspid was much higher than in the other two groups, this indicated that right ventricular dilatation resulted in elongation of the tricuspid valve and pulmonary artery valve. Typical X-ray signs are diagnostic of pulmonary cardiac disease. In 15 cases, 8 were correctly diagnosed before death. Analysis of autopsy material showed that 4 others could have been diagnosed with X-ray studies.

It was concluded that chronic bronchitis and pulmonary cardiac disease are actually the same disease in different stages. The disease develops from mild bronchitis to severe bronchitis, to pre-pulmonary cardiac disease, and to pulmonary cardiac disease. It takes a fairly long period for the development of bronchitis to pulmonary cardiac disease. X-ray studies will show early signs and prevention may be carried out before development of pulmonary cardiac disease.

AUTHOR: None

ORG: Prevention and Treatment of Chronic Bronchitis Section, Pulmonary Disease Department, Chung-shan Hospital, Shanghai First Medical School; Prevention and Treatment of Chronic Bronchitis Section, Yang-pu Area Worker's Hospital, Shanghai; Prevention and Treatment of Chronic Bronchitis Section, Chang-ming Area Hua-yang Area Hospital, Shanghai

TITLE: "Nasal Inhaled Sodium Cromoglycate in the Treatment of Allergic Rhinitis and Its Effect on Bronchial Asthma"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 566-568

ABSTRACT: Nasal inhaled sodium cromoglycate was used in the treatment of 85 patients who had both allergic rhinitis and bronchial asthma. Both diseases were classified as mild, moderate or severe. The severity of the two diseases was the same in 51 patients. The effective rate of treatment against allergic rhinitis was 91.8%. The effect of the treatment was short lasting, as recurrence occurred in some patients one week after cessation of treatment. During the course of treatment in 2-6 months, observations were made on asthmatic attacks of these patients. As 19 patients had received other forms of treatment for asthma, only 66 cases were considered

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 566-568]

in the observation. It was found that the effects of nasal inhaled sodium cromoglycate were closely related in the two diseases, the better the effect for allergic rhinitis, the better also the effect for bronchial asthma. In 16 cases of allergic rhinitis controlled under treatment, 15 did not have asthmatic attacks or only had mild attacks; in 4 cases with no effect against allergic rhinitis, there were also no effect against asthma. It was concluded that nasal inhaled sodium cromoglycate is effective against both allergic rhinitis and bronchial asthma. As the drug is short lasting, it was recommended to be used continuously during the season of frequent attacks.

AUTHOR: None

ORG: Ophthalmology Department, An-hui Provincial People's Hospital; Laser Section, Ho-fei Industrial College

TITLE: "Animal Experiment and Clinical Use of Laser Iridectomy"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 569-573

ABSTRACT: A laser iridectomy instrument was devised. It was first used on the eyes of rabbits experimentally and on the removed human eye specimens. Clinically laser iridectomy was performed on 435 patients, 556 eyes. It was performed on 32 patients with extensive corneal opacities, there were only light perception vision or hand movement vision. Although satisfactory penetration of the corneal opacity occurred in less than half the cases, some patients recovered some vision. It was performed on 154 patients 177 eyes with corneal central pannus or white plaques. The vision was improved in 126 eyes (71.1%). There were 172 patients 231 eyes with pupillary membranous occlusion, 74 eyes had secondary glaucoma. After laser iridectomy, vision improved in 73.2% of eyes with pupillary membranous occlusion and in 68.9% of eyes with secondary glaucoma. In 13 patients 14 eyes there were residual

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 569-573]

pigmentation in the lens, after laser iridectomy the residual pigmentation cleared up and the vision showed different degrees of improvement. There were 29 patients 50 eyes with congenital nuclear and perinuclear cataracts, after laser iridectomy all except one had satisfactory results. Laser iridectomy was performed on 8 patients with traumatic or post-operative pupil displacement, 7 showed some improvement of vision. Laser iridectomy was performed on 31 patients 46 eyes with primary glaucoma, more than half showed eye pressures returning to normal.

The advantages of laser iridectomy were discussed. The time of treatment was short, the results good, post-operative reactions were minimal, recovery was fast and chances of infection were very slight. Factors affecting the results of laser iridectomy were also discussed. These included the amount of pigmentation present, inadequate dosage of laser, inaccurate focus of laser beam, degree of corneal opacity, improper angle of laser beam, and condition of tissues around the iris. There were very few complications in this group after laser iridectomy. The question of using laser iridectomy for congestive glaucoma was discussed. Further observations are necessary to draw conclusions.

AUTHOR: None

ORG: Ophthalmology Department, Shanghai Sixth People's Hospital; Shanghai Ho-li Electrical Machine Factory; Laser Technique Experimental Station, Shanghai

TITLE: "Preliminary Report of Laser Iridectomy"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 574-575

ABSTRACT: A laser iridectomy instrument was devised and first used experimentally on rabbits to determine the dosage. Then it was used clinically on 88 eyes. They included post iridocyclitis iris bulging glaucoma 30 eyes, adhesive corneal white plaques 23 eyes, residual iridocyclitis pupillary membranous occlusion 10 eyes, prophylactic operation for primary glaucoma 9 eyes, post cataract operation updrawn pupil and pupil iris residue each 5 eyes, traumatic and post-operative iris eversion 4 eyes, perinuclear cataract 2 eyes. Factors affecting laser iridectomy were discussed. A dosage of 1-1.5 joules was sufficient to perforate iris structures at one sitting. The amount of pigment present and the thickness of the iris both affected the results. Laser beam is turned into heat by the pigments, so the more the pigments the less the dosage needed. Thickened iris structures

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 574-575]

requires larger doses. The deeper the anterior chamber, the larger the dosage needed. Proper focusing was also important in causing perforation. No serious complications were encountered. Complications included 9 cases with corneal punctate burn; 15 cases with minor superficial bleeding of the iris; slight inflammation which could be prevented by cortisone eyedrops; mobile pigments; acute glaucoma in 9 eyes which required operations in 2; displacement and change of shape of the iris. No injury of the retina occurred in this group.

AUTHOR: None

ORG: Neurology Department and Laboratory Department, Second Affiliated Hospital, Wu-han Medical School; Pathology Teaching and Research Section and Infectious Disease Teaching and Research Section, Wu-han Medical School

TITLE: "Analysis of 616 Cases of Leptospiral Cerebral Arteritis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 576-579

ABSTRACT: Analysis was made of 616 cases of leptospiral cerebral arteritis treated between 1958-1975. Epidemiological analysis showed that most cases came from the farms in epidemic areas; the season of the disease was between September to March of the next year, reaching a climax between October to December; 27.1% had acute febrile attack within a few months and paralysis usually appeared 1-5 months after the febrile attack; all cases had histories of contact with swines or infected water.

Most cases (80.5%) occurred in children below 12 years of age. Hemiplegia and aphasia were the main symptoms. The onset of paralysis was sudden in 41.6%, with gradual increased severity in 33.9% and intermittent in 23.5%. The mentality was clear in 89.6%, a minor group had somnolence and different

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 576-579]

degrees of mental disturbances. Paralysis was hemiplegic in 410 cases, diplegic in 160 cases, triplegic in 19 cases, monoplegic in 15 cases and bilateral upper or lower extremity paralysis in 4 cases. Motor aphasia occurred in 310 cases. In some cases there were unilateral or bilateral paralysis of the 7th, 12th, 9th or 10th nerves. Epileptic convulsions occurred in 61 cases, localized convulsions in 72 cases and paroxysmal spastic convulsions in 40 cases. Some cases showed different degrees of mental retardation. Some showed signs of increased intracranial pressure, 22 had papilloedema, 30 had signs of meningeal irritation. There was usually a moderate leucocytosis, a few showed eosinophilia. Serum leptospiral complement fixation test was positive in 64.6% as compared with a group of controls of 3.6%. Cerebral arteriography in 80 cases showed narrowing or complete closure of the upper bed of the internal carotid artery, the anterior cerebral and mid cerebral arteries. According to the clinical manifestations, 4 types of the disease were classified: Hemiplegic type 61.7%, prognosis good; diplegic type with hemiplegia extending to the contralateral side, 26.0%, with poor prognosis; pseudo cerebral tumor type, 4.5%, may die of cerebral herniation; intracranial hemorrhage type, 6.5%, with symptoms of subarachnoid bleeding.

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 576-579]

Autopsy was performed on 3 fatal cases. The cerebral blood vessel mainly involved was the mid cerebral artery, next was the anterior cerebral artery. The involved arteries showed marked hypertrophy of the intima, causing narrowing or complete block of the vessels. In a short course case (9 days) cerebral ecchymosis and edema were marked and there was herniation of the cerebellar tonsils, the brain tissues showed small softened foci and punctate bleeding spots. In long course cases (over 1 month) the brain tissues showed many large bleeding necrotic foci. Combined Traditional Chinese and Western medicine was used in the treatment. Vasodilators were mainly used, adding Vit. B, Chinese herb medicines, electric stimulations, acupuncture point injections, massage and physiotherapy. Of 331 cases thus treated, the cured and improved rate was 88.2%. Adding penicillin and prednisone in another group of 232 cases did not improve the results, the cured and improved rate was 87.5%. Most cases recovered completely, but some had residues. Twenty one patients died during treatment in the hospital. Follow-up studies of 311 cases for 0.5-13 years showed that most patients remained well or continued to improve, about 1/3 had different degrees of residual motor disturbances. Eleven had died after discharge from the hospital.

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TITLE: "Analysis of 116 Cases of Mediastinal Tumors and Cysts"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 580-583

ABSTRACT: During 1963-1974, 116 cases of mediastinal tumors and cysts were treated. They were teratoma 33, dermoid cyst 17, neurogenic tumors 28, benign cysts 21 and others 17. In 26 cases there were no clinical symptoms and they were diagnosed during physical examination for other diseases. The main manifestations in 90 cases with symptoms were chest pain, cough, hemoptysis, oppression, respiratory difficulties and superior vena cava syndrome. Antero-posterior and lateral X-ray films were usually helpful in establishing the diagnosis. The position of the different types of tumors and their characteristic X-ray findings were usually diagnostic. The characteristic X-ray findings of the different types of tumors and cysts were briefly discussed. All cases were operated upon. A postero-lateral incision was used in 100 cases, an anterior intercostal incision in 3 cases, a bilateral

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 580-583]

transverse incision in 6 cases, a sternal splitting incision in 3 cases, a combined cervical and thoracic incision in 3 cases, a short posterior intercostal incision in 1 case. The tumor was totally removed in 102 cases, partly removed in 6 cases, and exploratory thoracotomy was performed alone in 8 cases. Five cases died of operation, a mortality rate of 4.3%.

The incidence of the different types of mediastinal tumors was discussed. In this group teratoma and dermoid cyst had the highest incidence, in contrast to other reports of neurogenic tumors being more common. Differential diagnoses with mediastinal tuberculous lymph nodes and aortic aneurysm were discussed. Selection of a proper incision to gain access to the tumor was stressed to insure success of the operation. The different incisions for tumors of different positions were discussed.

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TITLE: "Preliminary Studies of Sterilization Methods for Eating Utensils"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 584-585

ABSTRACT: In several cities and counties of Shan-si Province, studies of sterilization methods for eating utensils were carried out. Experiments were carried out to test the sterilizing effects of boiling and use of chemicals against standard bacteria specimens containing *B. coli*, *B. dysentery* Flexner, *B. salmonella typhimurium*, *B. subtilis sporogenes*, and *staphylococcus aureus*. It was found that boiling at 80°C for 1 minute was effective against all the bacteria except *B. subtilis sporogenes*, which required boiling for 5 minutes at 100°C. Bleaching powder 1:8000 for 3 minutes was effective against all except *B. subtilis sporogenes*; chloramine 1:5000 for 5 minutes or 1:2500 for 1 minute was effective against all except *B. subtilis sporogenes*; bromogermine 1:2000 for 5 minutes or 1:1000 for 1 minute was effective against all; potassium permanganate 1:333 for 3 minutes was effective against all except *B. subtilis sporogenes*.

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 584-585]

The sterilization methods were carried out in restaurants. It was found that sterilization of eating utensils by boiling or steaming for 3 minutes was effective, but when the bacteria per square centimeter averaged 52, it required 5 minutes of steaming to be effective. All four chemicals were effective when they were used for 3-15 minutes. It was also found that the sterilization effect of bleaching powder lasted for only 1 day, whereas the effect of chloramine and bromogeramine lasted for 3 days. After these experiments, it was suggested that sterilization may be considered effective if the utensils contained less than 30 total bacteria and no B. coli per 100² centimeter.

AUTHOR: LU Yen [4151 1693]

ORG: Radiology Department, Capital Hospital, Chinese Medical Scientific Institute

TITLE: "X-ray Analysis of Retroperitoneal Air Inflation in 43 Cases of Adrenal Tumors"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 pp 586-588

ABSTRACT: The normal X-ray findings of the adrenal gland were reviewed. Methods of calculating the size of the adrenal gland were also discussed. The different types of adrenal gland tumors were also reviewed. The technique used in performing retroperitoneal air inflation and the technique of taking X-ray films in 43 cases of adrenal tumors were given. There were 34 cases of cortical tumors and 9 cases of medullary tumors. Nine of them were malignant. Positive X-ray findings showed the following: Large mass shadow or lobulated shadow over the adrenal area, 7 cases, 3 were malignant; oval or wedge shaped shadow, 14 cases, 10 benign cortical tumors and 4 pheochromocytomata; peak sign, 3 cases, all pheochromocytomata; adrenal gland appeared as a uniform dense triangle, 3 cases; tuberculated shadows in the

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 pp 586-588]

reticular structure of the adrenal, 3 cases; adrenal gland of normal size but the edges showed wavy bulgings, 3 cases; ectopic tumor around the kidney or along the urinary tract, 1 case. Suspicious signs included the following: The adrenal gland appeared like reticular structure, but the edges were bulging or the reticular structures showed irregular dense areas; the adrenal shadow on one side unclear or small, indicating degeneration, then a tumor on the other side was highly suspicious; when air inflation was excellent on one side and poor on the other, a tumor should be suspected for tumors frequently cause adhesions. False negatives may be caused by the following: the gastric fundus not filled with air may cast a shadow erroneously taken for the adrenal shadow; part of the spleen mistaken for the left adrenal; the descending duodenum mistaken for the right adrenal; the convex part of the kidney upper pole mistaken for the adrenal. The larger the size of the tumor, the easier was X-ray diagnosis made. Usually X-ray findings could not differentiate cortical tumors from medullary tumors. However, a peak sign is suggestive of pheochromocytomata and a wedge sign is suggestive of cortical tumors.

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TITLE: "X-ray Thoracic Manifestations of Malignant Granuloma"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 p 554

ABSTRACT: A 22-year-old male was admitted twice with symptoms of sore throat, hoarseness, bloody sputums, skin rashes and ecchymosis. A diagnosis of pulmonary tuberculosis was made and the patient was treated accordingly. On the third admission similar symptoms appeared, but biopsy of an epiglottis lesion showed malignant granuloma. X-ray studies of the chest showed infiltration of the lingual lobe. After treatment with cyclophosphamid and prednisone the skin rash disappeared and infiltration of the lingual lobe was mostly absorbed. The patient was admitted for the fourth time 6 months later with recurrence of symptoms. X-ray films of the chest showed a globular shadow with a central cavity on the right side. Cyclophosphamid and prednisone were again given and the cavity closed in two months. Follow-up studies 1-1/2 years later showed no signs of recurrence. The chest X-ray manifestations of this disease were briefly discussed.

AUTHOR: None

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TITLE: "The Action of Chloroguanidine and Other Anti-Arrhythmia Drugs in Counteracting Arrhythmias Caused by Adrenalin"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 p 561

ABSTRACT: Experiment was carried out on 7 groups of rabbits, each group with 6 animals. One group served as control. Chloroguanidine 50 mg/kg, dilantin 50 mg/kg, procaine amide 200 mg/kg, bromobenzylamine 100 mg/kg, practolol 25 mg/kg, and lidocaine 10 mg/kg were separately given to the other 6 groups. All were given intraperitoneally except lidocaine which was given intravenously. After 1-2 hours (5-10 minutes in the lidocaine group) adrenalin 50 mcg/kg was injected intravenously and EKG recordings were taken. When adrenalin was injected into the control group, immediately there were ventricular premature pulsation, ventricular tachycardia and ventricular flutter, reaching a height in 2-3 minutes and returning to sinus rhythm in 5-6 minutes. In the groups given procaine amide, lidocaine, bromobenzylamine and practolol, the results were the same as in the control

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 p 561]

group. In the group given chloroguanidine there was no arrhythmia after giving adrenalin. In the group given dilantin, 4 rabbits did not show arrhythmia, 2 showed ventricular tachycardia that lasted for only 1-2 minutes. The experiment showed that chloroguanidine and dilantin could prevent arrhythmia caused by adrenalin.

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TITLE: "A Three Blade Clamp for Esophago-gastric Anastomosis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in
Chinese No 9, 20 Sep 76 p 568

ABSTRACT: A three blade clamp was devised for esophago-gastric anastomosis. It was used in 50 resections of carcinoma of the esophagus and esophageal gastric junction. The esophageal end and gastric end were parallelly placed between the blades and anastomosis performed. No hemostasis was necessary. Exposure was excellent and the procedure simple. Approximation of the ends was accurate. No postoperative anastomosis leak, constriction or hemorrhage occurred.

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TITLE: "Report Two Cases of Multiple Enchondroma"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in
Chinese No 9, 20 Sep 76 p 573

ABSTRACT: Two cases of multiple enchondroma were reported. In one case involvement included the metacarpal and phalangeal bones and the radius and ulner on both sides. Eight years later the X-ray manifestations were about the same. In another case involvement included the right femur, left humerus, right tibia, the metacarpal and phalangeal bones of both hands and the right ileum. Both cases showed pathological fractures. The diagnoses were made by X-ray studies.

AUTHOR: None

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TITLE: "Reduction of Old Bilateral Mandibular Dislocation"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 p 579

ABSTRACT: A combined operative and manipulative procedure was performed on 10 patients with old bilateral mandibular dislocation. Under local anesthesia a 1.5-2 cm. incision was made on both sides just below the zygomatic arch. The condyloid process was reached and blunt dissection was made around it. A cleft palate dissector was placed over the condyloid process. The patient was asked to open and close his mouth, and the operator pressed downward on the dissector while the patient closed his mouth, pushing the condyloid process backwards during the manipulation. All ten cases were successfully reduced.

AUTHOR: None

ORG: Pharmacology Teaching and Research Section, Sin-kiang Medical School

TITLE: "Comparison of the Anti-arrhythmic Action of Polymyxin B and Lidocaine"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 p 583

ABSTRACT: In 2 groups of dogs the left coronary branch of the heart was isolated. One group was given lidocaine and the other group given polymyxin B. Five minutes later the left coronary branch was clamped. In the lidocaine group, EKG immediately showed lowering of ST segment and inversion of T wave, all animals developed ventricular ectopic pulsation and rapidly went on to ventricular fibrillation and death. In the polymyxin B group, there was lowering of the ST segment, but no ventricular fibrillation occurred. In two groups of rabbits, aconitine was used to cause ventricular tachycardia. Lidocaine was given to one group, 5 minutes later the heart rate was 240/minute, 15 minutes later it was 240/minute; polymyxin B was given to the other group 5 minutes later the heart rate was 270/minute, 15 minutes later it was 300/minute. In two groups of isolated rabbit hearts, aconitine was used to cause fibrillation. In one group lidocaine was given, myocardial contraction was

[continuation of CHUNG-HUA I-HSUEH TSA-CHIH No 9, 20 Sep 76 p 583]

markedly restricted, the fibrillation gradually decreased and disappeared. In another group polymyxin B was given and the fibrillation immediately stopped. In two groups of cats, bilateral vagotomy was performed. Injection of lidocaine caused a drop of B.P. 20 mm. Hg, injection of polymyxin B caused a drop of 15 mm. Hg. In isolated hearts, injection of lidocaine caused a 50% decrease of cardiac contraction, injection of polymyxin B caused no effect. It was concluded that polymyxin B has a greater effect than lidocaine in the control of arrhythmia caused by ligation of the left coronary artery and caused by aconitine. The dosage of polymyxin B that controlled fibrillation did not restrict cardiac contraction, which made it superior to lidocaine.

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TITLE: "Preliminary Observation of Small Intestine Absorption Function in Patients With Chronic Bronchitis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 9, 20 Sep 76 p 588

ABSTRACT: Forty four patients suffering from chronic bronchitis were given 1 gm. of xylose. A control group of 28 normal persons were also given the same amount. Two hours later the urine was collected and analyzed. In the control group the amount of xylose in the two hour urine averaged $28.0 \pm 3.2\%$, whereas in the chronic bronchitis group the average was $22.6 \pm 4.7\%$. This indicated that the absorption function of the small intestine in patients with chronic bronchitis was lowered.

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TITLE: "Report Case of Neisseria Micrococcus Catarrhalis Meningitis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in
Chinese No 9, 20 Sep 76 p 592

ABSTRACT: A 7-year-old girl was admitted with frequent convulsions, vomiting and unconsciousness. Gram negative kidney shaped diplococci were found in the spinal fluid. Penicillin and chloromycetin were given for treatment. The patient became mentally clear on the 4th day and all signs of meningeal irritation disappeared by the 8th day. Culture of the spinal fluid showed neisseria micrococcus catarrhalis.

AUTHOR: None

ORG: None

TITLE: "Establishment of Family Sick Beds and Close Nursing Care Wards for Pulmonary Cardiac Disease Patients"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in
Chinese No 9, 20 Sep 76 p 558

ABSTRACT: The departments of internal medicine of Shen-yang Railroad General Hospital, Kiran Railroad Central Hospital and Chin-chow Medical School Affiliated Hospital sent medical personnel to worker's dormitories and civilian homes to establish family sick beds for pulmonary cardiac disease patients. The Affiliated Third People's Hospital of the Shanghai Second Medical School, while carrying out general survey of chronic bronchitis and pulmonary tuberculosis, gave treatment to pulmonary cardiac disease patients in remission and obtained good results. The departments of internal medicine of Harbin Medical School Affiliated First Hospital and Peking Chao-yang Hospital established close nursing care wards for pulmonary cerebral diseases and severe pulmonary cardiac disease. With 24 hour close watch, any change of condition was detected and treated in time, thus lowering the mortality rate.

SCIENCE BULLETIN

AUTHOR: None

ORG: Ts'ao-ts'ung Brigade, Ts'ao-ts'un Commune, Cheng-ting-hsien, Hopei Province

TITLE: "Summarize Experience, Struggle for Wheat High Yield"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 442-449

ABSTRACT: The Ts'ao-ts'un Brigade is located in the central plain of Hopei. It has 474 families of 2480 persons, organized into 10 production teams. There is a cultivated acreage of 2860 mu, averaging 1.2 mu per person. All the fields are of irrigated sandy loam. Traditionally, the wheat acreage varies from 1600 to about 1800 mu per year. The yield in 1964 was only 187 chin/mu. Since the cultural revolution, several technical measures, based upon the growth principle of wheat, have been adopted and implemented and the yield has been increasing steadily to 482 chin/mu in 1971; 633 chin/mu in 1972; 652 chin/mu in 1973; and 814.5 chin/mu in 1975. Of the 1830 mu of wheat cultivated in 1975, the yield of 11.53 mu was above one thousand chin/mu. The technical measures adopted throughout these years are summarized and reported.

AUTHOR: LIU Shu-tzu [2692 2885 3320]
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ORG: None

TITLE: "Space-Time is an Objective Reality, Not a Subjective Product: Understandings From Studying Lenin's MATERIALISM AND EMPIRIO-CRITICISM"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese, No 10-11, 15 Nov 76 pp 450-456

ABSTRACT: This paper is based upon Lenin's arguments against the followers of Ernst Mach regarding the subject of Mach's principle, which states that space and time are nothing more than generalizations built up from observation and the properties of space and time have no independent existence. Due to the fact that Einstein incorporated Mach's views on space-time in his theory of relativity, the authors use the same arguments to attack Einstein's theory and to accuse him of being misled by his own religious bias. The acceptance of the concept of a finite yet unbounded universe by some philosophers and physicists of the Soviet Union is used by the authors to prove the link between revisionism and idealism. Statements on space and time made by F. Engels in ANTI-DUHRING are also quoted to support the authors' contention that "space-time exist objectively; time is everlasting and space is infinite; and motion is the substance of space-time."

AUTHOR: None

ORG: Nitrogen-Fixation Group, Department of Chemistry, Kirin University

TITLE: "Mechanism of Biological Nitrogen Fixation"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11,
15 Nov 76 pp 457-467

ABSTRACT: This paper explains the relationship between the functions of ferromolybdenum protein and ferro-protein; the relationship between the structure and the function of nitrogen-fixing enzyme; the action of ATP in nitrogen fixation; and the paramagnetic resonance experiments of Mortenson, Smith, and Eady. The major portion of the paper deals with the presentation of a new diagram depicting the mechanism of the action of nitrogen-fixing enzyme based upon the experimental data reported by the three scientists. The diagram is so designed so as to explain the paramagnetic phenomena observed by the three. Furthermore, this new diagram may also be used to explain many other experimental phenomena which have not been successfully explained by the three scientists.

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TITLE: "Progress in Plant Photoplast Fusion"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11,
15 Nov 76 pp 469-475, 441

ABSTRACT: Cell hybridization of plants have been advancing very rapidly since 1970. Many new techniques have emerged, including the technique of cell photoplast fusion. With this technique, cell photoplasts of different genetic characteristics can be fused together to form a new hybrid cell. Through culture and selection, this new hybrid cell can be made to divide and to form a new plant. It is possible that the obstacles to distant hybridization can thus be overcome so as to permit more broad groupings in hybridization plant breeding. The technique of plant photoplast fusion is explained, including detailed variations. Aspects and directions of future efforts and development of this field are discussed.

AUTHOR: CHU Lieh [2612 3525]
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TITLE: "Methods for Constructing a Family of 3-Design $(\lambda_m, 3, 2m, 2^n)$ "

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 476-478

ABSTRACT: The combination technique is used to construct in a finite realm $GF(2^n)$ a family of 3-design $(\lambda_m, 3, 2m, 2^n)$ where $n \geq 2$, $2 \leq m \leq 2^{n-1}$, while λ_m is determined from the following:

$$\lambda_{m+1} = \frac{(2^n - 2m)}{(2n - 1)(2m - 2)} \times \left[C_{2n-3}^{2m-3} - (2m + 1)\lambda_m \right].$$

The 3-design is a globally resistant BIB design, while 2-design is incomplete and is only locally resistant to the deletion of a single treatment. This paper was received for publication on 6 September 1975.

AUTHOR: HSU Chi-an [1776 3444 1344]
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ORG: Both of Institute of Physics, Chinese Academy of Sciences

TITLE: "Mechanism of Metal Catalyst Shifting Phenomenon in the Growth of Polycrystalline Diamond"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 479-482

ABSTRACT: In K'O-HSUEH T'UNG-PAO, Vol 19 No 7, 1974 (p 323) the authors et al analyzed the growth condition of polycrystalline diamond and concluded that the catalytic metal shifting phenomenon generally occurs twice. The first shifting transforms the graphite into diamond crystal aggregation of incomplete lattice. As the temperature rises again, the catalytic metal shifts for the second time to dissolve the aggregation and to cause it to crystallize into relatively small polycrystalline diamonds. This paper is a further study of the shifting phenomenon. Following analysis, the authors conclude that the shifting phenomenon is created by dispersion, dissolution, and condensation (crystallization) of the catalyst atoms in the graphite (or diamond.). Under a suitable condition, a given quantity of catalyst in a graphite system can grow only a limited volume of polycrystallines.

This paper was received for publication on 15 November 1975.

AUTHOR: LIU Han-chao [0491 3352 2507]

ORG: Department of Physics, Nan-k'ai University

TITLE: "Production Process of New Semi-Contained Multiple Particles - A Comparison With the Type and Proportion of Rapidity Gap as the Parameter and the Experimental Data"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 483-489

ABSTRACT: A one dimensional Chew-Pignotti model and Laplace transform are used to proceed with preliminary calculation of single particle velocity distribution in the semi-contained process. From the calculation, certain basic characteristics of non-diffraction events and diffraction events are obtained. The contribution of non-diffraction events, the contribution of low mass single diffraction and high mass single diffraction, and the contribution of low mass double diffraction are described. This paper was received for publication on 20 May 1975.

AUTHOR: YANG P'ing [2799 7340]

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TITLE: "Transition Between Crystalline Type and Bond Type - ABO_3 and ABO_4 Types of Crystals"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 490-493

ABSTRACT: In a previous paper, K'O HSUEH T'UNG-PAO Vol 21 No 3, 1976 p 136, the author used three independent parameters representing the three factors of crystal polarity, metallic property, and geometric element to study the principle of variation of crystal type and bond type of mono and simple binary crystals. As a part of the attempt to provide understandings of specific properties of materials of a higher order of complexity, and as a continuation of the previous effort, a study on the principle of variation of several tertiary crystals was conducted, using the same parameters. The results of the study is reported. This paper was received for publication on 15 February 1975.

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ORG: Peking Industrial College

TITLE: " K_I of Compression Tension Test Samples"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11,
15 Nov 76 pp 494-497, 489

ABSTRACT: Since the establishment of the new science of fracture mechanics as a new branch of mechanics of solids, one of the important subjects has always been the calculation of factors of stress strength. One of the most frequently used test samples for determining horizontal strain and fracture toughness is the compression tension test sample. Due to mathematical difficulties, there has not yet been a generally applicable analytical solution to compute precisely the K_I value of such samples and numerical solution is generally adopted as a last resort. Among the numerical solutions the boundary coordination method adopted by Srawley and Gross is the most precise as well as the most widely adopted. In this paper, the author reports his work in checking the results of calculations of Srawley, Gross, and others with this method as well as in an attempt to expand the realm of application to such conditions as $a/W = 0.1$ and $a/W = 0.9$, which the aforementioned scientists have not yet attempted to provide.

This paper was received for publication on 15 January 1976.

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TITLE: "Expression of Electronegativity and Its New Scale"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11,
15 Nov 76 pp 498-504

ABSTRACT: Electronegativity is an extremely important concept in chemistry. Great progress has been made on the subject in recent years, but there remain some problems of principle. The first is the problem of expression of electronegativity. None of the prevailing definitions of electronegativity is satisfactory in expressing the electron attracting capacity of the atoms in the molecule; while strictly speaking this capacity is related not only to the orbit and complexity of the atom but also to the characteristics of the atoms bonded to it. The next is the problem of the relationship between electronegativity and the characteristic of the chemical bond. The study on this aspect was, in the past, limited to the establishment of some experimental equations. The physical nature of the relationship has never been clarified. This paper starts with the LCAO-MO concept and the Schrodinger equation of double atom molecule to proceed with an analysis of the physical meaning of each of its terms for the purpose of resolving these and other problems of the subject. This paper was received for publication on 22 March 1976.

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ORG: All of Shanghai Institute of Physiology

TITLE: "Observation of Afferent Electrical Charge of Nonmedullated Fibers of Muscular Nerves Induced by Acupuncture or Pressure"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 505-506

ABSTRACT: In a previous paper, K'O-HSUEH T'UNG-PAO Vol 18 No 4, 1973 pp 184-186, the authors reported a study on the unit afferent electrical charge of medullated fibers of the front muscular nerve of cat tibia, stressing the observation of the pressure receptors in the deep tissues to record its electrical reaction to acupuncture stimulation and the distribution of the receptive field. Since then, it has been learned that there are twice as many non-medullated fibers in the muscular nerve of cats, but the physiological property and the central nervous action of these nonmedullated fibers are not yet very well understood. The authors, therefore, proceeded with a study using the same technique as was reported in the previous paper to observe the electrical charge characteristic and the distribution of the receptive field of this type of non-medullated fibers. Based upon the phenomenon observed, the possible action of these fibers during acupuncture analgesia is discussed. This paper was received for publication on 22 April 1976.

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TITLE: "Effect of Stimulation of Reticular Structure of Medulla Oblongata on Delayed Electrical Reaction in the Central Lateral Nucleus of the Thalamus"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 507-509

ABSTRACT: The fact that electrical needle stimulation of acupuncture points can control the electrical charge of the medial lemniscus and ipsilateral nucleus induced by trauma has been clarified in previous studies (CHUNG-KUO K'O-HSUEH No 1, 1973 pp 28-52; CHUNG-HUA I-HSUEH TS'AI-CHIH. NO 3, 1973 pp 131-135; K'O-HSUEH T'UNG-PAO Vol 19, 1974 pp 31-34.) In order to further investigate the transfer of the acupuncture analgesic effect further upward to the thalamus, especially through portion of the ascending fibers, the major relay stations, and the action of the reticular structure of the medulla oblongata during acupuncture analgesia, an experiment was conducted with surgically injured rabbits. The results of observation are reported. This paper was received for publication on 22 April 1976.

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TITLE: "Determination of Serum α Fetal Protein With Blood Corpuscle Agglutination Test for the Diagnosis of Liver Cancer"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 510-511, 478

ABSTRACT: Although there are many techniques of determining serum α fetal protein for the diagnosis of liver cancer, most of them are either overly complicated, or not sufficiently sensitive, or requiring special tools. They are, therefore, not suitable for the mountainous regions and rural villages of China. The Tumor Immunity Group established a blood corpuscle agglutination test for this purpose. Its application in high incidence regions of liver cancer during the previous year proved this technique to be simple, quick, and highly sensitive and to have special advantages over other techniques. The technique and test results of 408 cases are reported. This paper was received for publication on 8 May 1975.

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TITLE: "Semi-Synthesis of Harringtonine"

SOURCE: Peking K'O-HSUEH T'UNG-PAO [SCIENCE BULLETIN] in Chinese No 10-11, 15 Nov 76 pp 512, 509

ABSTRACT: The work of semi-synthesis of harringtonine was briefly reported previously (K'O-HSUEH T'UNG-PAO Vol 20 No 9, 1975 p 437.) Intra and extra corporeal anti-tumor experiments demonstrated that the synthesized product has biological activity. On the basis of the result of the original work, the technique was improved, the rate of reaction return was increased, and the synthesis pathway further investigated. The resultant improved technique and the product are described in the paper. A more detailed report of this work will appear in the future. This paper was received for publication on 26 September 1976.

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